

FLIGHT

and
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Thursdays, One Shilling

The Outlook

A New Milestone

SUPERFICIALLY it might not appear that the setting-up of a new world's speed record for helicopters (subject to F.A.I. homologation) was an event of outstanding importance. In actual fact, the achievement of an average speed of 124.3 m.p.h. by the Fairey Gyrodyne is an event of very considerable significance.

In the first place, the Gyrodyne incorporates certain arrangements which distinguish it from the general run of single-rotor helicopters. Torque reaction is opposed by a tractor airscrew instead of the more usual tail rotor, which is arranged to give lateral thrust and thus does not contribute towards forward propulsion. As a result, less power suffices for driving the main rotor. Also arising out of this arrangement is the fact that the main rotor tip-path plane in normal operating conditions of forward flight is substantially horizontal, resulting in smoother running and less likelihood of tip-stalling.

From the handling point of view, a further advantage of the Gyrodyne arrangement is that the main rotor is working at a small incidence and is thus within the autorotative range, so that an engine failure does not demand split-second action on the part of the pilot.

Theoretically, the Gyrodyne should, therefore, be somewhat faster than the equivalent orthodox helicopter, and the new record appears to substantiate this claim, especially if one bears in mind that it was established in weather conditions which were far from favourable, a fairly strong wind blowing diagonally across the course, thus necessitating "crabbing" to a considerable extent on the up-wind leg of the course.

There is not the slightest doubt that the Gyrodyne is capable of much greater speed than that established in the record flight, and the second machine, now nearing completion, may well beat the performance of the prototype before long, unless the Bristol 171 does so in the meantime!

As for the importance of speed in rotating-wing aircraft, the claims usually made by the advocates of this class is that it can rise vertically, hover, and descend vertically. While that ability is possessed by the helicopter only, one does not always want to indulge in aerial pole-squatting. In fact, the helicopter, in common with every type of aircraft, will spend most of its working life in translational flight. When fully developed, the class should be capable of operating in thick weather which would ground many fixed-wing machines, but it should also be able to work in very high winds if regularity of service is to be attained, and for this it is essential that a fairly high translational speed should be available when the need arises.

The Fairey company's rotating-wing division under Dr. Bennett is to be congratulated on having achieved such marked success so shortly after the first free flight (December 7th, 1947). Credit is also due to the Alvis company for developing the Leonides installation which has enabled the Gyrodyne to reach such an advanced stage in a few months. The engine of a helicopter works under arduous conditions in that much running is required at high power outputs.

—and an Old One

APPLAUDING new achievements should not make us forget the old ones, and it so happens that this month we can celebrate another British event: the first flight by a power-driven model aircraft. On July 2nd, 1848, John Stringfellow succeeded in making his steam-driven model fly under its own power. That many years were to lapse before Wilbur and Orville Wright made their first flights in a full-size machine does not detract from the merits of the efforts of such early pioneers as Cayley, Henson and Stringfellow. They appreciated the basic principles of heavier-than-air flying machines and visualized the general form. The great obstacle was lack of a suitable prime mover.

Pictures which we publish this week indicate the